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To the Chef—A Toast

HERE'S to the chef—the unsung hero of the pots and pans—the man who through his skill gives to ordinary foods the irresistible savor that entices appetites and wins patronage.

Like the chef working in his kitchen to prepare the perfect dinner, so the staff of Foote & Jenks labors in its laboratory to produce the perfect flavor — flavor that contributes vitally to the success of your confections.

For 46 years we have been trying to do for flavor what the life-skilled chef does for food. And we believe the ever-increasing sales volume of Foote & Jenks flavored confections is a true index of the outstanding quality that has been so carefully developed.

THIS Company approaches a half-century of specialization in the task of developing and perfecting terpeneless, super concentrated, water soluble flavors. Our entire time and attention are devoted to the manufacture of SOLUBLE Concentrates—to research work, scientific control, and the constant testing of our products in various forms of foods. It will be to your definite advantage to avail yourself of this specialized service.

FOOTE & JENKS—JACKSON, MICH.

FOOTE & JENKS' "ISOLATES"

VANILLA · · · LEMON · · · ORANGE *and 12 others*

When you need FOOD COLORS

Let your first thought be

ATLAS

Manufactured by

—KOHNSTAMM—

First Producers of
Certified Colors

Strength **Brilliance**

Purity **Uniformity**

Established 1851

The Atlas Label is Your Protection

H. KOHNSTAMM & CO., Inc.

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CHICAGO, ILL.
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Editorial

A. ADAMS LUND, Editor

Candy's New Tool

AMONG the more progressive element, great interest attaches to the industry's newest tool—refined dextrose, or corn sugar.

Early attempts to utilize corn sugar by an unscientific, pound for pound replacement of cane sugar in existing formulas was mostly productive of headaches and concrete. It is now becoming quite generally realized that each sugar has its own distinct set of physical and dietetic peculiarities and that each is adapted to doing certain candy making tasks better than others, and other tasks not so well. It is no longer a question of cane sugar *versus* corn sugar, but of the proper employment of both to produce better candies.

About a year ago, a candy manufacturer with research facilities of his own, sensed something of the potentialities of this new sugar as a tool for making better candies and persuaded one of the corn products refiners to establish a practical candy experiment station to operate in conjunction with the research department of the refinery. It was realized that in order to convince skeptical candy makers (and they had had ample basis for their skepticism) of the merits of refined dextrose when used properly, it was necessary to iron out for them the many "snags" invariably encountered in dealing with a product with whose chemistry and working characteristics they were unfamiliar.

The man chosen to operate the model candy plant was a candy maker of international reputation, selected from among the contributors of this paper.

The wisdom of this course of submitting actual samples and formulas to confectioners who professed to be "from Missouri" has been adequately demonstrated during the comparatively short period that the experimental plant has been in operation. Requests for samples of the new dextrose candies are in excess of supplies and the sale of refined corn sugar to the confectionery industry have shown a substantial and gratifying increase. In some lines of candies, the use of dextrose has become an established procedure—large quantities being consumed from month to month on a regular carload basis. So far as the confectioner is concerned, it looks as though commercial dextrose is here to stay. And it may interest those of an inquiring turn to know that the annual production of corn sugar today (and of course this takes in all industries) is already in excess of the combined annual productions of Louisiana cane and domestic beet sugars before the war.

On the Difference Between *Making* and *Believing in* Candy

HENRY SPEAKER is a candyman. Like all good candymen his favorite topic is the perfidy of the cigarette manufacturers.

At the conclusion of his invective, he offers his patient listener—no, not a candy, but a cigarette.

He toils for the candy industry by day; at night he rebukes his child for "filling up on candy." Mother remonstrates, "Well, he'll never get sick on the amount of candy *you* bring home!"

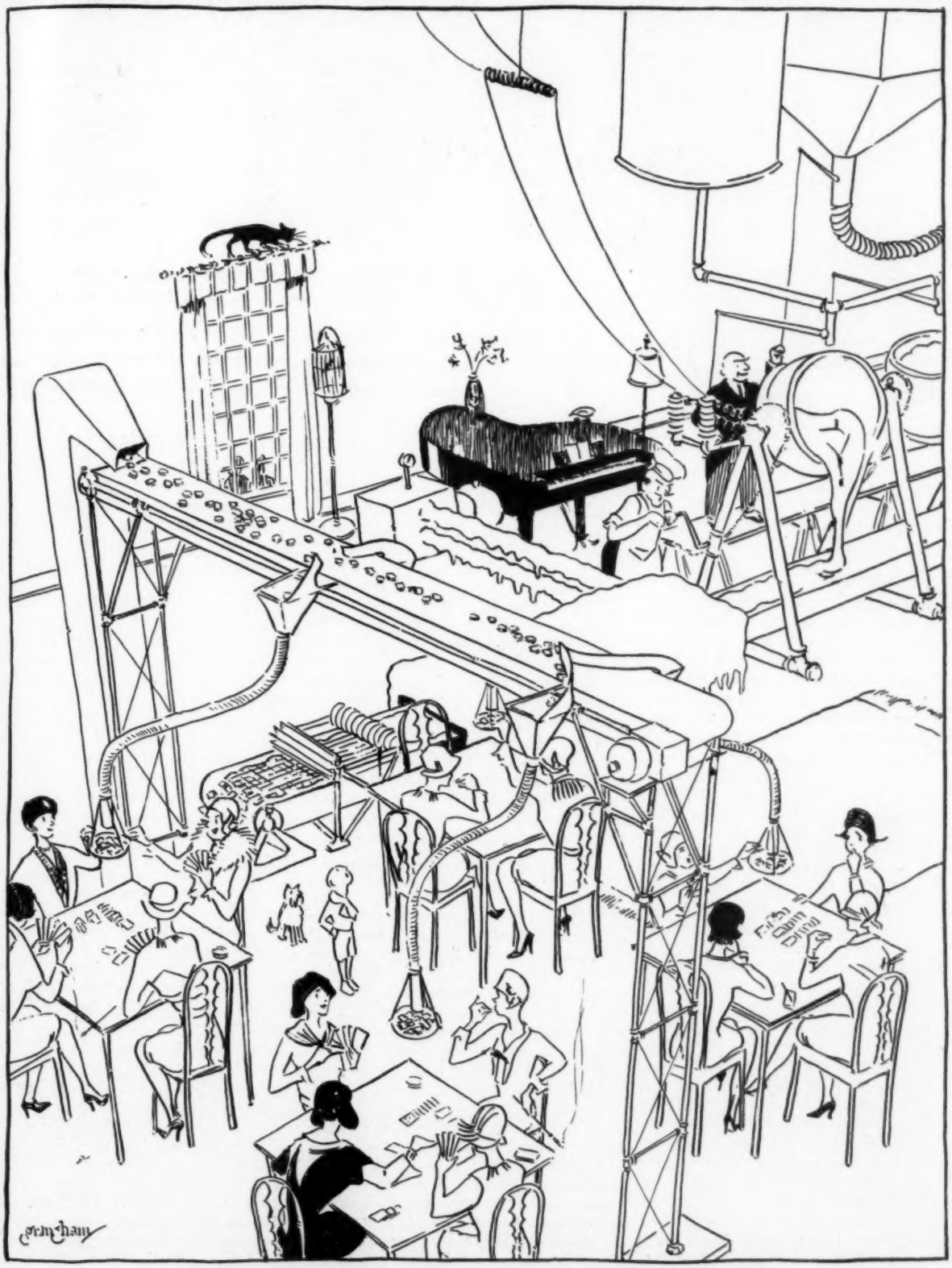
Last Sunday was Mother's Day. Henry remembered to send a bouquet of carnations to his dear old mother. Of course, mother would have preferred a one pound box of old fashioned molasses kisses, but —well flowers are more "sort of sentimental," don't you think?

For his card parties, Henry has wine in the cellar, cigarettes at every table, and candy—why, in the factory, where Henry seems to think it belongs.

Now there is nothing at all unusual about Henry. You probably could name

(*Continued on page* 61)

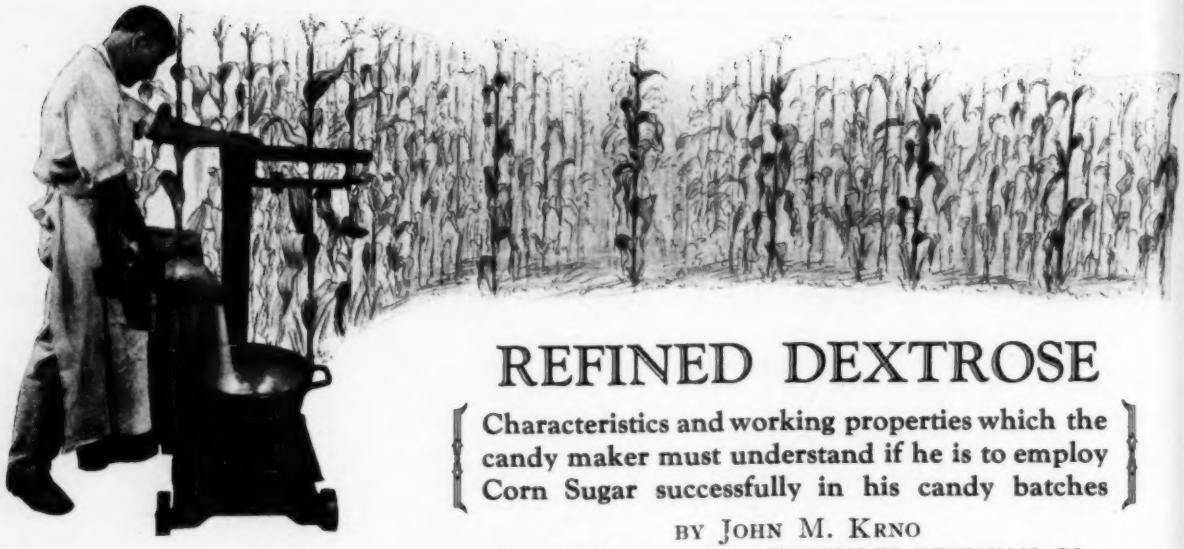
Speaking of "the value of aggressive selling" as opposed to destructive advertising . . . . (with a bow to Mr. D. M. Hubbard, whose article, "The Value of Aggressive Selling" appears in this issue.)



GLIMPSES OF THE HOME LIFE OF INDUSTRIAL GIANTS

VII. The candy manufacturer helps his wife entertain at bridge

(Reprinted from Factory and Industrial Management)



REFINED DEXTROSE

Characteristics and working properties which the candy maker must understand if he is to employ Corn Sugar successfully in his candy batches

BY JOHN M. KRNO
Research Chemist, CORN PRODUCTS REFINING CO.

Part One

CORN SUGAR, otherwise known as starch sugar or dextrose, is widely distributed in nature, although nearly always accompanied by fruit sugar (levulose). It is one of the two major constituents in honey and is found in the juices of practically all fruits and other plants. Small quantities of dextrose are found quite generally in vegetable tissues. It is also present as a normal constituent of blood and animal tissue. Dextrose is most abundantly distributed in nature, however, as a constituent in combined form, of substances such as vegetable glucosides, and the more complicated sugars or polysaccharides. Sucrose (ordinary cane or beet sugar), lactose (milk sugar), maltose (malt sugar), etc., all yield to dextrose as one of the end products of their inversion.

The "glucosides" referred to occur in innumerable plants, the products of which are used in food or in medical treatment. Bitter almonds, the kernels of peaches and plums, the leaves and stalks of sorghum, the black mustard seed, lima beans, flax, cassava, wintergreen, the bark of the willow, apple and pear, and a legion of other sources yield glucosides containing dextrose in combined form.

Dextrose can be produced commercially by "hydrolizing" these polysaccharides and glucosides. This hydrolysis is accomplished either with the aid of acid or of enzymes. Cellulose (which is the structural material of the vegetable kingdom); the various starches and dextrines; and disaccharides such as sucrose, lactose, and maltose, all break down into dextrose. This hydrolysis, whether by means of an acid or an enzyme, must be accomplished in the presence of water. It is the *water* that reacts. The acid or enzyme merely plays the role of "catalyst," which means they accelerate the reaction, but in accordance with the best of our present-day knowledge, do not enter into the reaction in the ordinary sense. Their method of functioning is presumed but not definitely known.

Process Resembles Human Digestion

Both acid and enzymatic hydrolysis occur in the human stomach and intestines during the digestion process. The catalyzing acid which functions in the stomach is the same as that used in the commercial preparation of dextrose from starch, namely, hydrochloric. Of course, the quantity utilized for the process of human digestion is necessarily small.

The hydrolysis of sucrose or cane sugar can best be used as an illustration of the action of acids and acid salts upon the more complex sugars. The reaction is as follows:

$$\underset{\text{Sucrose}}{C_{12}H_{22}O_{11}} + \underset{\text{Water}}{H_2O} = \underset{\text{Dextrose}}{C_6H_{12}O_6} + \underset{\text{Fructose}}{C_6H_{12}O_6}$$

The above will be recognized by candy makers as depicting the production of invert sugar which takes place when cream of tartar, tartaric acid, citric acid, or other so-called "doctors" are added to cane sugar solutions during the heating of the batch.

Thus, it can be seen that dextrose has been used by the candy industry, perhaps unwittingly, from the very beginning of the industry. Whenever honey is used, a substantial amount of dextrose is present. If invert sugar is added or created during the process of manufacture by the action of an acid, cream of tartar, or enzyme, dextrose is an inevitable component of the final product. It is introduced by the fruit juices. Corn syrup, loosely termed "glucose," has become practically indispensable to the candy industry. A large portion of that ingredient is dextrose. Corn syrup also contains maltose, another sugar, which in turn yields dextrose as a final break-down product. Certainly corn sugar cannot be considered a total stranger to the candy industry.

Nevertheless, in its pure form, free from its associates—starch, dextrines, levulose, etc.—in its commercial, crystalline state as *dextrose hydrate*, it is, comparatively speaking, a new product available to the candymaker. The candymaker, in order to make the best use of this new tool in fashioning different, unusual, new products, must become conversant with its characteristics and its peculiarities. It is the writer's purpose to point out the

salient characteristics of corn sugar and to warn of possible difficulties which the candymaker might otherwise encounter.

There is such a thing as too much caution in dealing with dextrose and excessive caution, caused by a lack of information concerning the nature of the product, frequently leads to unlooked-for trouble. What is more natural, when working with an unknown product, than to proceed slowly?

New Principles Involved

Suppose a candymaker plans to use dextrose in making a fondant. Possibly he realizes that dextrose has a lower solubility than cane sugar and that in consequence he will have to cook his batch to a lower temperature than he has been accustomed to. He may say, "Now, this is a new product. I may run into trouble with it. I'll watch my step and go slowly." So instead of using what to him may seem a preponderating amount of the new product in his batch, he replaces only 30 to 40% of his cane sugar with dextrose. What happens? He will not get his batch to grain in anything like a reasonable time. If he uses less of the new product, the difference may not be worth bothering about. On the other hand, if he cooks to a higher temperature (although he may still experience some trouble in getting his batch to grain), the fondant which is finally produced will become exceedingly hard. His excessive caution, lack of proper information, and his resulting experiences with the product, often prevent him from trying to make a fondant *with dextrose as the principal ingredient*. He will say, "It acts like corn syrup," and will conclude that it is not worth while to experiment further. Of course, this reaction on the part of the candy maker is unfortunate, since it now requires both education and sales persuasion to demonstrate to him that corn sugar can help him to make a better and smoother fondant.

Corn sugar, or dextrose, is a simple sugar (mono-saccharide) in contrast to sucrose (cane sugar), and maltose, which are disaccharides. There are two forms of dextrose crystals—the hydrate and the anhydrous. It is the hydrate, containing one molecule of crystal water (as distinct from free moisture) which is at present being offered to the candy maker. Becke, in Tschermak's *Min. Mitterlungen*, Vol. 10, 464 (1889), gives a detailed description of these two forms. The anhydrous crystals belong to the rhombic system and appear as elongated prisms. Dextrose hydrate crystallizes in the monoclinic system and forms thin plates.

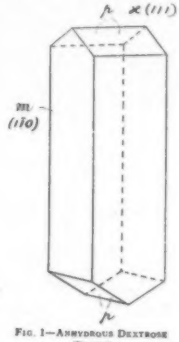


Fig. 1—Anhydrous Dextrose (Becke)

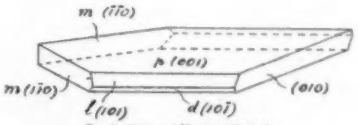


Fig. 2—Dextrose Hydrate (Becke)

Newkirk, Industrial and Eng. Chem., Vol. 16, No. 11, page 1173, calls attention to the fact that in a crystallizing dextrose magma three types of dextrose hydrate crystals are present. One form consists of an aggregation of crystals twining as elongated needles starting from a common crystal nucleus. As he terms it, "a cauliflower-like mass results." The second type is an elongated, needle-like crystal. The third is broader than it is thick and is of approximately the same length as breadth.

From the viewpoint of the dextrose manufacturer, the third type is the desirable one. The first two types break up very easily, the second being especially fragile. In order to obtain the third form, a desirable initial crystal must be introduced and its mode of forming properly controlled. Best results are obtained by introducing a definite amount of "wet seed" or crystals from some preceding batch which contains the desirable crystal and then controlling the temperature and degree of supersaturation. The concentrations and temperature employed at this stage cannot be definite since they are modified greatly by impurities and by products other than dextrose which may be present. Hence, this control is not scientific but depends on individual judgment. Fortunately, however, the candy maker interested in corn sugar is not so much interested in the production of a large crystal as he is in the opposite problem —that of producing a uniformly small crystal.

Fine Grain a Boon to Confectioners

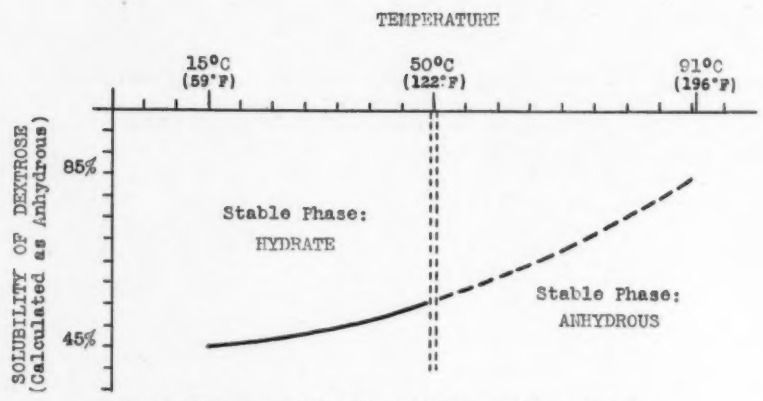
For the candy maker, the most interesting and striking fact obtainable from a study of crystallization of dextrose is that dextrose has this tendency to produce grains of extremely fine microscopical size. This is, naturally, of tremendous importance in making a fondant. It is impossible to duplicate with cane sugar alone the smooth, velvety feel and appearance of a dextrose fondant. Dextrose also affects the crystallization of cane sugar in the same way when this is present. Where dextrose is the predominating ingredient in a fondant it is practically impossible to obtain a gritty effect.

In crystallizing dextrose, heat is produced. In other words, the reaction is "exothermic." Is the quantity of heat produced large enough to warrant serious consideration when making a fondant? Yes, but it does not present any insurmountable or very troublesome problem. It simply means that the batch must be subjected to greater cooling before crystallization begins, and that cooling must also be maintained during the crystallization. The seed, in the form of a dry dextrose, or better, a fondant from a preceding batch, should be added only after the batch has been cooled a bit lower than is the usual practice in order to compensate for this rise in temperature due to crystallization.

Dextrose is easily soluble in water. It is not, however, as soluble as cane sugar. The following partial table will illustrate the difference in solubility between the corn sugar and the cane sugar of commerce:

Temperature (° *C.*)	*Grams of Sugar in Solution in* 100 *Grams of Solution*	
	Corn Sugar	*Cane Sugar*
20.....	47.5	67.1
25.....	50.7	67.9
30.....	54.7	68.7
35.....	59.8	69.6

The above table indicates the comparative *degree* of solubility of



The hydrate crystal is the stable phase below 122° F.

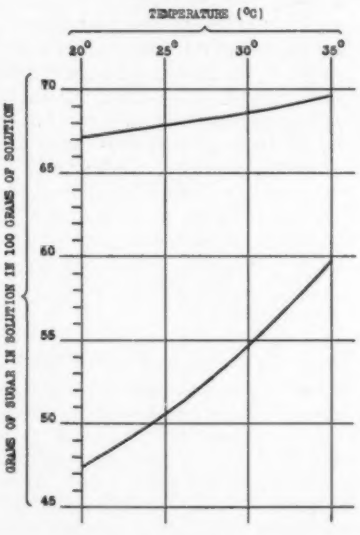
the two sugars. This should not be confused with the *rate* of solution. When nearing the saturation point, then the rate of solution is materially affected by its degree of solubility for the temperature in question. Dextrose goes into solution as easily as cane sugar so long as it is not closely approaching its degree of solubility for the temperature at which the candy maker is working. Another factor influencing the rate of solution of the sugar in question is its "fineness." A sugar of finer mesh has a faster rate of solution than one which is coarser, since the former exposes a greater surface area to the action of the solvent.

Dextrose Users Deal With Not One Crystal, But TWO

R. F. Jackson and Clara Gillis Silsbee have studied the solubility of pure dextrose in water, and their results have been published in Bureau of Standard's Scientific Paper No. 437. They found that the solubility of dextrose calculated as anhydrous varied from 44.96% at 15° C. to 84.9% at 90.8°. They found that above 50° C. anhydrous dextrose becomes the *stable phase*. This means that if a dextrose solution saturated at, say, 65° C., were to be cooled, but not below 50° C., and then kept at the lower temperature until crystallization occurred, the crystals formed would be of the anhydrous variety. If the temperature at which the crystals were deposited were somewhat *below* 50° C., the hydrate form of dextrose would precipitate. However, the transition point of 50° C. (122° Fahr.) should not be considered as too definite, since in its immediate vicinity a mixture of the two crystal forms deposits from solution. The melting point of dextrose hydrate was indicated by these research works as being near 83° C. (181° Fahr.).

As can be seen from the solubility data, dextrose has a very large temperature coefficient of solubility.

Comparative solubilities of dextrose and sucrose

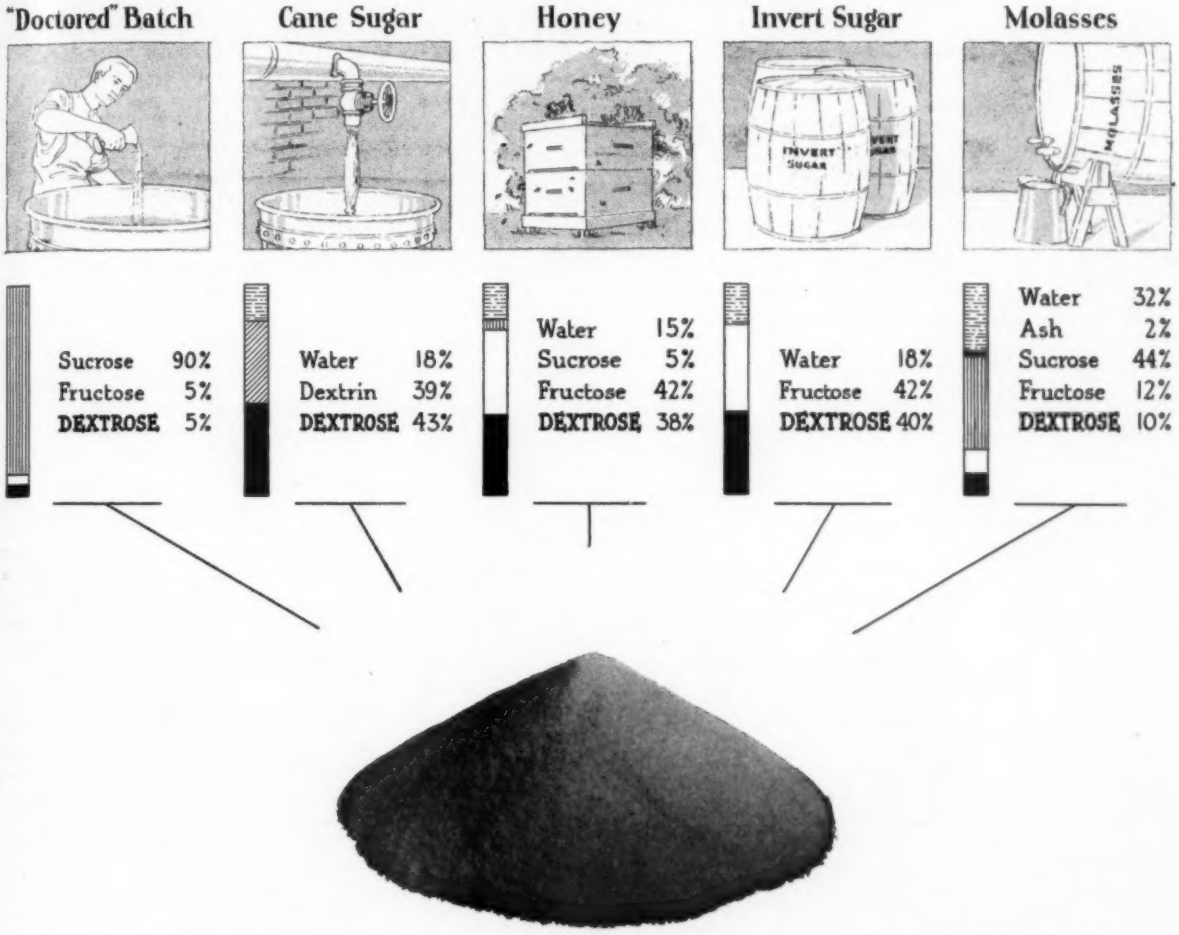


As an instance of the increase in the degree of solubility of dextrose, when the temperature increases from 30° to 35° C., the change in the degree of solubility amounts to 5.1 grams of sugar per 100 grams of solution. For cane sugar this increase is comparatively constant, being for the same 5° C. increase in temperature, only .8 grams of sugar per 100 grams of solution.

This peculiarity of dextrose has to be taken into account by the candy maker when working with it. He is apt to be deceived by its comparatively high solubility at his working temperatures, which are usually near the boiling point of his mixtures. He knows from experience that the degree of solubility of cane sugar varies only slightly with the changes in temperature and very often he is in the habit of judging the final effect he desires to obtain by the appearance of the batch at these high temperatures. He naturally assumes that dextrose will act in the same manner and that on setting and cooling he will get a result, as to texture and consistency, comparable to that obtained with cane sugar. The greater insolubility of dextrose at the lower temperatures, however, yields a grainier, harder mass than he expected, and so not infrequently discourages him from further trials with this promising raw material.

Since corn sugar is most frequently used in connection with cane sugar, dextrines and levulose in the candy industry, it is necessary to consider the effect which each of these substances has on the solubility of corn sugar. Again, the greatest contribution to our knowledge along these lines has been given by R. F. Jackson and Clara Gillis Silsbee of the Department of Commerce. Corn sugar, or dextrose, has a "salting out effect" upon cane sugar, or sucrose. By "salting out" is meant an increase in the tendency to precipitate—that is, the solubility of sucrose is *lowered* by the presence of dextrose. Dextrose and invert sugar have an almost identical effect upon the solubility of sucrose. Levulose, with dextrose a component of invert sugar, decreases the solubility of dextrose. These sugars mutually modify each other's crystallization tendencies so that different effects are obtained. Dextrose causes cane sugar to crystallize in much smaller crystals, giving to fondants, creams and icings a smoother texture which cannot possibly be duplicated without its aid.

Dextrose, in combined form, not new to candy industry—



—but one of Candy's oldest and most useful ingredients

(Mr. Krno's article on the characteristics and working properties of Corn Sugar will be concluded in the June issue.)

"Refined dextrose, oldest and newest tool of the confectionery industry," is the title of a series of articles by Mr. John M. Krno on the practical working properties of corn sugar. Associated with Mr. Krno in the practical development of confectioner's dextrose at the experimental candy factory of Corn Products Refining Company, is Mr. Adolph Schildberger, a candymaker of international reputation, whose contribution to THE MANUFACTURING CONFECTIONER *last year elicited widespread comment in the confectionery industry. Subsequent articles in Mr. Krno's series will deal with the practical problems which have been overcome in the use of corn sugar in specific types of candy—fondant, marshmallow and nougat, gum work, etc. Each branch of the candy industry will be treated in turn and the chemical principles underlying corn sugar's use in each explained in a way which the man at the kettle will understand. Completed, the series will comprise one of the few text books available to the industry on the chemistry of confectionery sugars.*—THE EDITOR.

Candy Takes a Lesson from the Sugar Institute in

THE VALUE OF AGGRESSIVE SELLING

BY DANA M. HUBBARD
(*Conducting "The Adviewer"*)

IT'S a pity there were no photographers on the job that mild November morning.

Turn the clock back twelve years. The scene is one of those old, gray, stone wharves in St. Nazaire, busy French seaport. A dumpy, little freighter—American with a Spanish name—has just crept in to the dock and made fast. Down her gang-plank come 50 American soldiers....the most emaciated, starved-looking contingent, I believe, that the American Expeditionary Forces landed to succor an ancient ally.

We were twenty-four days out of Newport News, Va. Twenty-four days without a trace of sugar in any of the 72 meals served aboard ship.

Of course, the Army furnished sugar, plenty of it, for its men. But somehow none of it reached us. Our opinion was, and still is, that the ship's steward hoarded it and turned it into bales of war-time francs or whatever he demanded that France had to offer. You could buy almost anything in St. Nazaire for a mighty small quantity of sugar in 1917.

The point is simply this. During the 24-day voyage every man of the 50 aboard ship lost weight at a rate none of us ever dreamed was possible. From ten to thirty-eight pounds was the toll exacted by twenty-four days on a sugarless diet. Had a photographer been on the spot when our ship docked, what a picture of gaunt, hatchet-faced heroes-in-the-making he could have taken. What conclusive evidence for the Sugar Institute's campaign.

Advertising Minus Ballyhoo

For the Sugar Institute, a group of 16 refiners, is in the midst of a constructive effort to teach all Americans who read what we soldiers learned so uncomfortably. Namely, that you can't take sugar out of the daily diet without paying a tremendous price in loss of energy, loss of weight and loss of stamina. The Institute is making millions of Americans realize two things for their own good. First, the positive value of sugar and foods flavored or preserved with sugar; and secondly, the serious damage and resultant disease that may be caused by the lack of a proper amount of sugar in the diet. There hasn't been much ballyhoo about the Institute's advertising so far. It isn't the spectacular kind. I don't think it is overstating it to say that some of the industries most vitally concerned do not yet grasp its full significance to them.

BY adopting a program of "aggressive selling" and refusing to join hands with the ballyhoo forces of destructive advertising, the Refined Sugar Institute has set a valuable precedent for the sweet foods industries. Convincing copy of this sort has long been needed "to take the cuss off sugar", as one authority puts it; consequently, by establishing sugar's rightful place in the diet, the Institute is helping to sell candy as well. The effects of this advertising will be felt a great many years after the original advertising appropriation has been spent. It is an excellent example of advertising skill harnessed to a limited allotment accomplishing over a somewhat longer period of time, what unlimited funds seek to accomplish overnight.—The Editor.

To the manufacturer of candy, who in far too many cases has allowed himself in the last few years to be put on the defensive, the Sugar Institute's campaign should be an impressive lesson in the value of aggressive selling.

Let's look for a minute at what the Institute is doing and then try to appraise its importance to the candy industry.

Believing that extremists have misled too many people into accepting an entirely erroneous idea concerning the place of sweetened foods in their diets, the Sugar Institute is now placing advertising in a large number of daily newspapers and in magazines read by the medical profession, by nurses, by instructors of home economics, and by teachers and other women interested in the rearing of children. It is asking a large number of food products manufacturers to co-operate in placing slogans designed to sell the food-value idea of sweets on their cartons and packages. In the writer's humble opinion it is proceeding along sane and well-planned lines.

Capitalizing "Reader Interest"

In itself, the style of advertising merits a word of comment here. The newspaper advertising resembles the ordinary news article in headline and body. The magazine advertising has been laid out to look like a "typical" magazine article with distinctive headlines and vignetted half-tone illustrations that would do most editorial offices credit. In a sense, the advertising bids for the reader's interest by seeming to discard the format of advertising, although in all cases it is labelled for what it is. Every publication of any stand enjoys a certain amount of prestige. Its readers accept the editorial contents as possessing some value as entertainment or information. Otherwise they would not buy the publication. They may or may not accept the advertising appearing therein at face value. In the light of the extravagant and exaggerated

HEAD—

With his Favorite Flavor

Sugar improves the flavor of so many healthful foods that true it is if you flavor with sugar, you flavor with health.

With sun on his face, wind in his hair, days calling him out to sports—yes, this is the time when his appetite is active. Answer that appetite, temptingly, with the health that gardens offer. Do this by cooking the vegetables with just enough sugar to improve their appearance and their flavor.

Don't use enough sugar to make the vegetables sweet. Simply enough to make their own flavors stand out fresh and clear.

Cook the boy's favorite vegetables with a little sugar—and see how fine and good they are. Cook string beans, for instance, with a little sugar and note that the flavor is pointed and improved. Then cook the boy's unfavorite vegetables with a little su[gar] carrots, it may be. Note how brightly orange emerge—note their appealing flavor. Sugar flavor enhances the natural fresh-tastes of the ta[bles]. It brings out their flavors subtly. It prep[ares] for well-seasoned sauces.

Sugar is pure, wholesome, and liked. Active b[oys] and girls need the vitamins, minerals, and roughag[e] the vegetables. Try the combination. These th[ree] recipes may help:

Carrot Loaf. Scrape carrots and boil in slig[htly] moderate oven till firm. Serve on hot platter with new peas, or white sauce. This is an interesting serving.

Onions in Cream. Peel and cook ten small onions in salted water with one level teaspoon sugar. Serve with a cream sauce made of one tablespoon but[ter] cooked a few minutes with

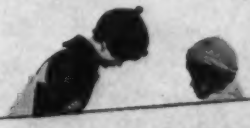
Children's Food needs Sugar

Sugar is a natural flavor. Pure, wholesome, lasting. And it makes other good foods palatable.

Athlete wants and Needs Sugar

The rightful place of Sugar in the Diet

The wonder of a little Sugar in his Food



Correcting dangerous food fads

SUGAR & COMMON SENSE

needed in the diet

GOOD FOOD is a good P[ROTECTO]

SUGAR has rightful place in a good die

1. A conserver of foods
2. A flavoring substance
3. A satiation factor
4. A staple food

STALKING THE FOOD FADDIST

DIETING

for slimness ruinous to health of Hollywood's stars

Doctors and nurses, in warning the public of the dangers of extreme dieting, will find support in the aid experiences of motion-picture stars.

A new danger to the health of motion picture stars has just been revealed. The motion picture camera, in photographing a star, adds from 5 to 20 pounds to the appearance of her figure, so that many screen celebrities, because of the fad for slimness, have felt called upon to undergo rigorous programs of dieting.

Photoplay Magazine recently announced that many of the stars have suffered collapse because of this dangerous practice. One famous star died of tuberculosis aggravated by weight reduction. Another ruined her career and was made an invalid by starvation. Still another collapsed on a set from trying to lose 10 pounds.

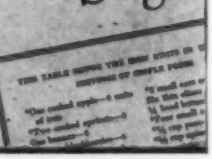
One of the alarming dieting extremes indulged in by the stars, according to *Photoplay*, is eating no food at all for breakfast, and seriously limiting the quantities of nourishing foods for both luncheon and dinner.

Modern health opinion recommends a variety of foods, including vegetables and fruits, both fresh and canned, sweetened for enjoyment. Sweetness is the factor that encourages the ingestion of nearly all the healthful roughage, vitamin-bearing staples of young working women are likely to be at the price of permanent injury.

Sugar is a Coach to the indifferent appetites of convalescents

To the well and to the convalescent sugar is Nature's greatest blessing as a condiment.

your Iron with Sugar



claims of super-advertisers and especially in view of the current wave of the malodorous bought-and-paid-for testimonials, there is a feeling among many in the advertising business that the public's credibility of advertising has fallen in the last few years.

If it is true that the man in the street is inclined to accept most advertising for considerably less than it purports to be, then it is probably true that the Sugar Institute's advertising will suffer least. For it does not resemble advertising. It looks like reading matter that had come across the editorial desk. As such it necessarily sacrifices some display forcefulness.

Many of the sugar advertisements released so far cite medical authorities on the danger of going to extremes in this dieting business. They point out the folly of eating unbalanced meals and suggest that sweets have a place in every normal diet. They show how essential sugar is in making certain health-building foods palatable, and in flavoring nearly all foods. That sugar is a most inexpensive form of energy food is a theme which recurs in nearly all of the individual advertisements prepared so far.

In the eyes of men and women who earn their living by preparing advertising the copy is long for the amount of space used. That alone will damn it with some, despite the fact that countless experienced advertisers keep on using long copy year in, year out. If it did not pay, they would soon change their tactics. The truth is that it makes little difference whether advertising copy is short or long. People have never been, and are not today, so busy that they won't stop to read and re-read something that interests them. Of course, you must first flag their attention with an arresting headline or an interruptive illustration. After that, it's up to the copy. If the copy's good they'll read it to the end and wish there were more.

Laying a Foundation of Confidence

The Sugar Institute's copy is skillfully done. No mistake about that. Naturally, it talks to women 99 per cent of the time, since they are the nation's purchasing agents of food products. And it talks to them plausibly. In studying thirty odd pieces of copy I don't encounter any statement that strikes me as calculated to raise a doubt in the reader's

(*Continued on page* 46)

Newspaper ads such as these, while unostentatious, are sound merchandising. The Consumer's confidence is gained through simplicity and similarity to surrounding news copy.

ASK ME!

Five minutes of fun and mental exercise. The answers to all questions will be found in the reading matter of current issues.

MAY QUESTIONS

1. What commercial process closely resembles human digestion?
2. What is the newest sugar to be announced by the U. S. Department of Commerce as a commercial possibility for the future?
3. What other sugar is obtainable from the same source?
4. How did gelatine come to be associated with the mediaeval problems of converting three oxen into four?
5. Who has been described as the world's most earnest advocate of better cacao, cocoa and chocolate?
6. What is "osseine"?
7. What organization has adopted the plan of "consumer education first" as a means of combatting hurtful cigarette propaganda?
8. Which of the two forms of dextrose crystal is the "stable" one above 122° F.?
9. What characteristic of dextrose makes it ideally suited to experimentation in fondants?
10. In marshmallow manufacture, is it possible for fermentation to result from crystallization?

Answers to April Questions

1. *Why do bruised or broken cacao beans usually possess an inferior flavor and aroma?*

Ans. The true cocoa aroma is developed inside of the bean during fermentation, while the surrounding pulp goes through alcoholic and acetic acid fermentations which develop some unpleasant smelling bodies from the decomposition of proteid matters. These aromas will be taken up by the bean itself if the skin or "shell" is bruised or broken.

2. *What chemical reaction begins to take place the moment ordinary sugar (sucrose) is dissolved in water?*

Ans. Hydrolysis. The breakdown of the sugar by the hydrogen ion into which a portion of the water dissociates is exceedingly low, however, and would normally require years to complete.

3. *Why do "doctors" (catalysts) never become used up or worn out?*

Ans. Because they are constantly being regenerated in equal amounts during the catalytic action and so may be used over and over again.

4. *Which caramelizes at the lower temperature—pure sucrose (cane sugar) or pure dextrose (corn sugar)?*

Ans. Contrary to general opinion—sucrose.

5. *Is it true that because of sugar's natural affinity for mineral substances, candy tends to deplete the teeth of their structural elements, calcium, etc.?*

Ans. No. Candy being the complex product that it is, we find the mineral requirements adequately satisfied by the other raw materials—chocolate, nuts, fruits, milk products, etc., which are used in conjunction with the sugar.

6. *What are "catalyst poisons"? Are they a factor to any extent in candy manufacture?*

Ans. "Catalyst poisons" are substances which alter or chemically unite with the catalyst or "doctor" to form new substances devoid of catalytic power. Thus, heat "poisons" invertase, etc., a factor of considerable consequence in candy manufacture.

7. *What influence on the bone-building processes of the human body has been ascribed to sugar by Dr. Olaf Bergeim?*

Ans. The eating of sugar, says

(*Continued on page* 54)

Candy's Aid to Teeth and Bones

(Part V- The Role of Candy in Science and Health)

BY ORVILLE H. KNEEN

SCIENCE is at last ready to apply a scientific silencer to the anvil chorus from the Candy-Ruins-the-Teeth brigade. And no better prelude can be found than this letter to the editor of Hygeia, published by the American Medical Association, for January, 1925:

> **"I would be very much obliged to get your opinion on some food theories advanced by a certain physician. He claims that white sugar should be completely abolished from the diet. It acquires something in the refining process, he says, which when taken into the body unites with the phosphorus of the nervous system and calcium of the teeth, and is responsible for many ailments. As substitutes for white sugar, use brown sugar, honey or corn syrup, he advises. Consumption of white sugar is one cause of cancer, he thinks."**

A generation ago, some years B. R. (Before Research), this man would not have written in, because his physician would have reflected the *general opinion* of the day. But NOW! No wonder the man wanted advice. And the editor, being both sensible and conversant with research, replied:

> **"Although a great many claims have been made about the harmfulness of white sugar, we doubt if any have ever been substantiated. Brown sugar, honey and corn syrup are all wholesome sugars. Since no one has yet determined the cause of cancer, the statement that consumption of white sugar is one of the causes of cancer is, of course, not founded on fact."**

How many such misstatements on sugar can be laid away to their last resting place under that epitaph—NOT FOUNDED ON FACT!

Candy Aids in Calcium Storage

As for the statement that sugar is harmful to the tooth-forming calcium of the body, we need only turn to Part II of this series, in which was given *American Medicine's* report on the research work of Dr. Olaf Bergeim at the University of Illinois College of Medicine. His findings are summarized in the words: "*Eating sugar tends to make the body store and use calcium much better.*"

Now let us see what this business of storing calcium *much better* has to do with bigger and better teeth:

> **"Calcium is the element most apt to be lacking in American diets," says Walter H. Eddy, Ph. D., Professor of Physiological Chemistry in Teachers' College, Columbia University, in "Nutrition," 1928. "It is not surprising," he continues, referring to long studies made by him on diets and teeth, "to find dental defects and other manifestations of the lack of this element."**

Dr. W. D. Sansum, Director of Potter Metabolic Clinic, where many physical wrecks have been salvaged, notes in "The Normal Diet" that calcium phosphate and calcium carbonate comprise about 90 per cent of the mineral content of bones. To get this vitally needed calcium for bones and teeth he advises a quart of milk per day, and certain vegetables. Recent research, he says, attributes rickets and maldevelopment of bony tissue to lack of calcium phosphate, lack of sunshine, and lack of certain vitamins.

X-rays have shown, says Dr. Sansum, that the density of a dog's bones is definitely thinned when he is fed on a meat diet, the needed alkaline phosphates being withdrawn from his own bones to counteract his acid diet. "This might very well be the cause of bone and teeth destruction in human beings," he concludes. Most of the foods he lists as containing abundant supplies of these alkaline phosphates, and milk, are used in making candies.

Note also his conclusion:

> **"If an individual has normal hemoglobin, if adequate amounts of fruits and vegetables are taken to satisfy bulk and alkali requirements of the body, and if the diet contains one quart of milk daily, it is reasonably certain, save in those districts where the water is deficient in iodine, that the mineral needs of the body will be fully satisfied."**

That a general diet furnishes the calcium and other mineral needs is likewise the finding of Dr. Logan Clendenning, Jean K. Rich, M. S., and L. A. Rumsey, Ph. D.

Specialized Bone-Building Candies

Note also the candy materials, some of them extensively used, in which calcium occurs in large amounts, among them milk,

cream, various vegetables, oatmeal, whole wheat, raisins and various fruits, nuts, eggs, and so on. Honey toffy and caramel are rich in calcium and other minerals. Molasses candies, and others made with "natural" sugars, also supply tooth-building minerals.

"Nuts are rich in calcium," says Daniel Russell Hodgdon, Sc. D., Ll. D., President of Valparaiso University, "as well as other essential minerals such as phosphorus, potassium and magnesium—all essential for digestion and the formation of bones, blood, hair and teeth."

So much for those who still chant the ever-diminishing chorus, in such phrases as these: "Sugar is undermining the nation's health." "Our blood, our teeth, our bones suffer," and this *recent* crescendo: "Candy is very bad for children. It produces irritability, restlessness, lusterless hair, bed wetting, eczema, and ferment in the mouth, and it damages the teeth . . ." ad nauseum.

Vitamins likewise play a vital role in maintaining good teeth. Says *American Medicine*, February, 1927, page 76:

"The work reported by Miss Agnes Grant, of the Dept. of Agricultural Chemistry of Ohio State University, in Dental Cosmos for Sept., 1926, would indicate that it is more important to take cod liver oil and orange juice in the diet than to visit the dentist. Or at least it is more wise, because these substances contain vitamins which will see to it that our teeth are so good that we shall not have to go to the dentist at all.

TEETH, VITAMINS AND TOOTHPASTE

"Normal teeth could only be grown if the calcium and the vitamins in the diet were carefully balanced. Since previous work on this question has demonstrated that vitamin deficiencies tend to produce both dental decay and tooth abscesses it appears that further investigation along nutrition lines and an adequate balancing of the diet will do more to eradicate tooth troubles than any amount of toothbrush campaigns and elaborate toothpastes."

In Hygeia for May, 1926 (published by the American Medical Assn.), we likewise learn of careful tests on children and dogs:

"It may be said definitely that foods such as milk, egg yolk, butter, animal and fish fats, and especially cod liver oil, bring about the formation of good teeth."

All except the last two products are used in candies.

Dr. Herman N. Bundesen, noted public health official of Chicago, says that Vitamin A gives strength, makes good teeth, prevents some eye diseases, prevents the tendency to lung diseases, and is perhaps the most important of all vitamins. Candy materials containing this vitamin, he adds,

Are You and Yours Victims of the DIET TAMPERER?

are whole milk, cream, butter, egg yolks, etc., and he says:

"Milk is rich in calcium, tremendously so, and also in Vitamin A. That is another one of the ingredients in chocolate. Pineapple is a good source of Vitamins A and B. Some other fruits used in candy contain much Vitamin A. This is true of cherries, strawberries and oranges. One of the richest sources of Vitamin B, which is so necessary to build up resistance, is cereals, and nuts contain as much Vitamin B as cereals.

"Peanuts are not only a valuable but an absolutely necessary food, particularly for growing boys and girls. The lysin in peanuts is essential to build strong bones and strong bodies and strong tissues."

Dr. Sansum, previously mentioned, notes that Fat-soluble Vitamin D (found in various candy materials in conjunction with Vitamin A) is the element which prevents rickets and maldevelopment of bony tissue.

The Anvil Chorus

Among the many ills laid to sugar and candy, that of tooth-decay from digestion of sugar, is one of the oldest. Note this from "Right Food—the Right Remedy," by C. C. Froude, M. D.:

"Sugar has a very harmful effect upon the teeth. Sugar-eating, with other dietetic errors, is responsible for many tooth troubles—especially in children who are fed so much acid-producing foods, sugar and starch. The teeth of the nation are degenerating, one reason being that so much mushy, sloppy food is eaten that the teeth do not get enough work to keep them healthy."

With the latter statement science agrees. But not so with the anvil chorus. How much easier it is to lay all our troubles at the door of some evil spirit, spook, demon, supernatural force or universally-liked food, than to find out the real causes of our ills!

For what food is not a "dietetic error" if eaten to excess? And *are* sugar and candy "acid-producing," to be held responsible for tooth troubles? Our answer comes from Dr. W. D. Sansum, in whose hospital at Santa Barbara many acidosis victims have been treated.

Dr. Sansum tells in "The Normal Diet" of curing the acid-ash type of acidosis (caused by excessive use of otherwise good foods like meat, fish, eggs, bread, cereals, etc.), by balancing the diet with ample potatoes, cantaloupes, and various fruits (such as candy-makers use) and—including oranges, apples, bananas, etc.

The other very serious type of acidosis, Dr. Sansum says, is caused by insufficient sugar combined with over-supply of fat. "The normal diet," he says, "should contain an adequate amount of starches and sugars to prevent the acetone type of acidosis."

So here we have one of the most modern and successful of nutritional health-builders *relieving and curing* cases of excessive acid with the very sugars and starches which the unscientific accuse of *causing* these serious ailments!

Aggressive Selling

(*Continued from page* 42)

mind. She can accept them at their face value.

So far so good. The sugar refiners can not escape a greater demand a more stable demand for sugar as their advertising, persisted in and properly utilized, informs more and more people of the truth about sugar and sweet foods in the diet. The sugar industry figures that way, too. But there is considerably more to it than the matter of direct gains to the refiners.

Besides serving its own members The Sugar Institute is doing a truly monumental service to three important food groups. They are the Sweeteners, that is, the producers of cane syrup, corn syrup, honey, molasses, etc., who benefit as the truth about sweet foods is more and more widely realized. There are the associated industries producing and distributing flour, eggs, milk, coffee, fresh fruits, and so on almost indefinitely. In advocating wholesome, nourishing foods, the Sugar Institute is championing their bread and butter with a vehemence. Finally there are those manufacturers of whose products sugar is a component part—candy, ice cream, carbonated beverages, jams and jellies, canned fruits, bakery products. When stage and screen stars—usually children in thought, if any—cause a nation to lose its head over reducing, this last group of manufacturers suffers first, even before the sugar refiner. So the Institute is operating in a rather broad-gauge manner. So far as candy is concerned, I have read in at least two of its advertisements that "modern candies containing nuts, fruits, milk, chocolate and sugar make excellent desserts" or "modern candy is perfect for dessert."

Nothing appears in any of the sugar advertising or in the explanatory matter circulated by the Institute that would even so much as hint that the sugar refiners consider themselves altruists. The movement is strictly business. Its repercussions will be heard on cash registers and mirrored in statements of net earnings, if their aims are realized. But, Mr. Manufacturing Confectioner, give the Institute credit. It is helping itself by helping you. To all intents the Institute never heard that there are folks deliberately encouraging the dangerous, get-slender-at-all-costs idea. Outwardly it gives no evidence of recognizing that any element in any industry is trying to climb by planting its heel on the candy industry's neck. The Institute is going after what it wants in a live-and-let-live, ethical manner. And in so doing it is setting a mighty constructive example in aggressive selling for the candy industry. The candy industry might, without doing itself the slightest harm, fall in line to the extent of making wide use of one of the Institute's suggested slogans, "A bit of sweet makes the meal complete."

Yes, there should have been a photographer on the wharf at St. Nazaire that morning. What a picture of bony, undernourished artillerymen we must have made after going 24 days without reaching for a sweet!

Still Another Fruit Sugar in the Offing?

The Bureau of Standards of the U. S. Department of Commerce, having demonstrated on a semi-factory scale that it is commercially practicable to produce the *simple* sugar, fructose, from a species of common sunflower known as the Jerusalem artichoke, now essays new heights of scientific accomplishment by bringing into being a new *compound* sugar, or disaccharide, from the same source. The new sugar, which while at present only a laboratory curiosity, holds perhaps as much for the future as the other new sugars which have recently come within the sphere of candymaking, is *difructose anhydride*.

Following is the technical abstract released by the Bureau of Standards pending distribution of the complete paper, which is now in press at the Government Printing office. The "inulin" referred to as the basic raw material, is the starchy substance derived from the artichoke in the same manner that starch is derived from corn. Discussion of the potentialities of this new sugar from the layman's standpoint, will be given in an early issue.

A Crystalline Difructose Anhydride From Hydrolyzed Inulin

BY RICHARD F. JACKSON AND SYLVIA M. GOERGEN

Technical Abstract

The polysaccharide, inulin, has previously been shown to consist solely of fructose residues. In the present investigation inulin was carefully purified by repeated crystallization from aqueous solution and the purified substance hydrolyzed with sulfuric acid of various concentrations and at various temperatures. Sulfuric acid was removed by titration with barium hydroxide and the resulting solution analyzed. The solutions, regardless of this method of hydrolysis, showed approximately a constant composition. Based upon 100 per cent solids which were determined densimetrically, hydrolyzed inulin contained 91.8 per cent fructose, 94.8 per cent reducing sugar, and 5.2 per cent non-reducing substance. The latter was isolated by precipitation of the fructose by lime, and fermentation of the remaining reducing substances with yeast. The resulting product showed a $[\alpha]_d^{20} = +55$. When subjected to 0.4 N H_2SO_4 at 100° C. it hydrolyzed slowly to fructose. Calculation showed that it was 25 times as resistant to hydrolytic agents as the remainder of the inulin molecule.

Acetylation produced an oil from which about 30 per cent crystallized in the form of prismatic needles of m.p. 137° C. and $[\alpha]_d^{20} = +0.54$ in chloroform. Analysis and a molecular weight determination showed that it was the hexa-acetate of a disaccharide. By deacetylation of the hexa-acetate with $Ba(OH)_2$ the parent sugar was obtained in crystalline form. It crystallized from absolute alcohol in minute plates and showed $[\alpha]_d^{20} = +27$ in water. It was hydrolyzed by 0.2 N H_2SO_4 ($[H]^+ = 0.109$) at 100° C. with a velocity constant of 0.009 (minutes, common logarithms) solely to fructose. Accumulated evidence indicated the formula $C_{12}H_{20}O_{10}$. The substance is, therefore, a difructose anhydride possessing but six hydroxyl groups.

The mother liquors from the crystalline hexa-acetate containing 70 per cent of the original inulin residue have to the present writing remained in sirupy form. They have a molecular weight corresponding to the hexa-acetate of a difructose anhydride and in contrast to the crystalline acetate show a $[\alpha]_d^{20} = +31$. They are, therefore, isomeric difructoses of higher specific rotation than the one isolated in crystalline form. In view of this isomerism the authors suggest the designation Difructose Anhydride I for the sugar of $[\alpha]_d^{20} = +27$.

The origin of these difructoses is as yet undetermined. It is established that neither ordinary fructose nor Y-fructose is condensed to difructose under the conditions prevailing during the hydrolysis of inulin. Three possibilities suggest themselves. First, the difructoses are integral parts of the inulin molecule and survive the hydrolysis. This postulates an inulin molecule of very high molecular weight. Second, inulin, even if highly purified, is heterogeneous. Some molecules contain difructose residues of the species described in detail, others the isomeric difructoses, others aldose residues, and possibly others consist solely of Y-fructose residues. Third, the disaccharides are formed during hydrolysis by condensation of difructose fragments to the corresponding anhydrides.

A plea for a common meeting-ground between buyers and growers of cacao.

MEET Mr. Cacao-Grower

("Chats on Chocolate" VII)

By Robert Whymper

(Author of "Cocoa and Chocolate" and International Chocolate Authority; writing exclusively in The Manufacturing Confectioner)

WHEN all is said and done, it should be a cacao of fine aroma, mellow taste, and pleasing color, with, of course, about 50 per cent of cacao butter present—the whole at a reasonable price—that should appeal to manufacturer and public. The "reasonableness" of the market price should follow and not determine the quality of cacao. At present, for a variety of reasons, some of which have already been considered, price is the main consideration and this prevailing influence will have to suffer.

By now, complaints of many readers must have been heard saying that through six articles there has been nothing but adverse criticism first of the cocoa and chocolate produced, and second, of the cacao grown, and that it is about time some indication were given regarding a constructive policy which such a pessimist as the lugubrious writer *should* have in mind. After this article our method will change, and ways and means of making good chocolate and cocoa will be discussed. But before this is done, it is more necessary still to see whether the faults that exist, and that are at the bottom of all the trouble, cannot be eliminated.

Narrow-Mindedness, Bane of the Chocolate Industry

The constructive policy is by no mean Utopian, but consists simply in bursting the water-tight compartments into which members of the various branches of the industry have locked themselves. There are already in existence numerous societies and associations which from their titles, should be assisting the chocolate manufacturers. One such is an English affair about which few outside a selected circle of manufacturers, mostly with large capitals, know anything at all. It does, indeed, function with great secrecy, and its publications are distributed only among the members. Its working staff consists of well-trained, knowledgeable men, mostly chemists, who have spent some time in jam, candy, cocoa and chocolate factories. Its advisory committee, on the other hand, includes probably the pick of English experts in every branch of the candy and chocolate industries, but, owing to the jealousy of the firms to which the individuals belong, their meetings are models of diplomatic conversations on which the English justly pride themselves. In other words, the work has to be done by men of average intelligence who never have access either to the sealed wisdom of the experts or to the real problems involved as they occur in actual practice. Much less is there any opportunity for these comparatively poorly paid workers to travel to the seat of the cocoa and chocolate industry, which lies on the plantations. This is but one example of a number of similar institutions with whose activities I am familiar. It is, I presume, hardly necessary to warn those who are contemplating the formation of yet another organization for the benefit of the manufacturer in the United States not to be narrow in these matters, but to allow the men that can be found to investigate all the important questions at first hand.

The Grower's Viewpoint

Now let us take a look at another section of the industry equipped with water-tight compartments, sealed every bit as closely as those of manufacturers. It has already been shown in some degree, though the reality is far more serious than the few difficulties described, that the grower of cacao is in the hand of God for his crop, and of the speculator for the price he can obtain. The grower's troubles are manifold, his labors seldom remunerative, and his crop precarious. He cannot be expected to regard the user as a friend but, quite reasonably, I think, he usually considers those who work up his cacao into cocoa and chocolate as ignorant, fickle men who get rich at his expense. Moreover, his attitude is seldom given a chance to change because he never meets manufacturers nor hears their views except through brokers who, by the way, will have to look to their laurels if they want to keep in the cacao business at all since, in some quarters, these go-betweens are be-

ginning to be regarded as a superfluous fence that hitherto has separated grower and user from a proper exchange of ideas. In all fairness to the brokers it should be remarked, however, that they have done nobly well in protecting manufacturers, and that, for the small commission paid for transactions, they could not have gone far afield to study or anticipate the requirements of their clients. But whatever the truth about the brokers, the growers know nothing, about the needs of the manufacturers unless they happen to be financially associated in some cocoa or chocolate factory, as is occasionally the case. In most cases it is a fact that grower and manufacturers do not meet, or only so seldom that neither gets to know the other or the difficulties with which each and the other have to contend. However, grammatically incorrect or redundant this last sentence may read, it is true whichever way you interpret it.

No Common Ground

The voice of H. Hamel Smith, the energetic editor of "Tropical Life," and the most earnest man in advocating better cacao, cocoa and chocolate, has been heard crying in the wilderness for a number of years. That he is an ardent Trinidadian only adds to the value of his opinion, for Trinidad has been responsible, so far, for the only improvements made in the cacao situation. On River Estate are stationed the finest research laboratories devoted to the subject of cacao: in Trinidad has been formed a sound association for the control of quality and price of B. W. I. cacaos, and from there and Grenada come undoubtedly the most uniform cacaos of good quality at a reasonable price grown in the United Kingdom. Reference has already been made to the writer's opinion

Mr. Whymper's series to date:

and

In the June Issue

Chocolate Quality and the Cocoa-Moth—don't miss it!

A typical Convention of Growers and Manufacturers discussing the moot subject of chocolate quality—

—Each faction locks itself up in a little water-tight compartment and remains impervious to the opinions and needs of the other

Mr. H. Hamel Smith, Editor of "Tropical Life," and one of the industry's most vigorous protagonists of chocolate quality, has for many years been a lone voice crying in the wilderness.

that Costa Rican and Panama cacaos are even better value for the money, and the fact that these may be said to be all-American cacaos should encourage manufacturers in the states to give them every possible support. Hamel Smith, too, was responsible for getting together growers and users of cacao at a meeting that I attended in London some years ago. The meeting was a revelation, for there was no common ground on which to meet since no one present of the actual growers or actual users knew anything at all about the other's problems, and each was profoundly distrustful of the other's interests. That meeting was a failure, also, in real achievement, but so pregnant with future possibilities that it may be said that there at that meeting was born the germ of co-operation among the West Indian growers, small and puny though the infant, which was expected to be big enough to have something of the manufacture in it as well, turned out to be.

Take Time to Study Cacao on the Spot

The cocoa and chocolate industry is large, wealthy and growing. Why in the name of the Food of the Gods can it not make a grant to cacao growers allowing them to attend some of its numerous conventions, and finance some of its leading experts to study cacao on the spot where quality is determined? In the course of various lengthy stays on cacao plantations in different parts of the world, I have often met a chocolate manufacturer or a broker on a pleasure trip, occasionally a cocoa and chocolate chemist on a round-the-world cruise, but far more often bug-hunters of coleopterists, botanists, and even archaeologists searching for something out of the ordinary. I have never yet made, though I know two persons who have made a thorough study of both sides, anyone connected with cocoa and chocolate manufacture devoting time and trouble to learning the conditions governing the quality of raw material upon which his case, however I may be charged that my own experiences are limited, there are too few who know both sides of the question or who seem to realize that there *are* two sides to this cacao question, each of equal importance if the industry is to be maintained at a high level.

Answers to April Questions

(*Continued from page* 43)

Dr. Bergeim, enables the body to store calcium more readily.

8. *What is the sole function of a "doctor" (catalyst)?*

Ans. To accelerate a reaction already under way.

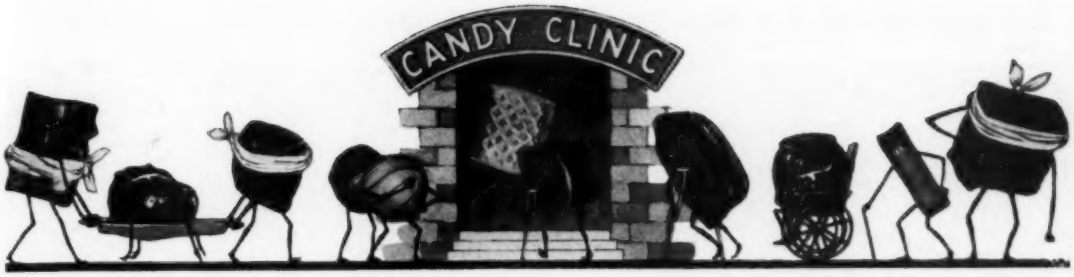
9. *Name the breakdown products (products resulting from the action of a "doctor") of the following compound sugars: Cane sugar, malt sugar, milk sugar.*

Ans.

Common name	*Chemical name*	*Breakdown products*
Cane sug.	(sucrose)	=dextrose+levulose
Malt sug.	(maltose)	=dextrose+dextrose
Milk sug.	(lactose)	=dextrose+galactose

10. *Is it possible for fermentation to result from crystallization of the sugar in a marshmallow?*

Ans. Yes. As sugar crystallizes out of the syrup phase, a certain amount of water is made available for dilution of the syrup film consisting of sugar, corn syrup, gelatin, water, etc. If this film becomes sufficiently diluted and the other conditions are favorable for the development of micro-organisms, fermentation will result.



ASSORTED "HOMEMADES"

Code 4K 29

Assorted Homemades, $1.00 lb.

(Purchased in a Retail Chain Store in New York City.)

Appearance of package: Excellent. Dark blue wrapper, tied with cord to match.

Box: Brown wrapper, 2⅛ in. gold band in center. Name and printing in gold. Very attractive looking.

Appearance of box on opening: Very good.

Chocolate Coating: Sweet and Bittersweet.

Sweet Chocolate Centers: Nougat: Good.
Pistachio Bon Bon: Very poor eating piece. Center hard and dry.
Solid Chocolate Pieces: Good.
Caramel: Very hard. Not a good piece.
Butterscotch: Too hard to eat.
Molasses Sponge: Good.
Marshmallow Fudge: Good.
Vanilla Cream: Fair.
Marshmallow Caramel: Marshmallow very tough. Caramel too soft.
Chocolate Nut Taffy: Too hard to eat.
Foiled Caramel: Too hard.

Bittersweet Chocolate Centers: Orange Cream: Good.
Cherry Cream: Good.
Peppermint Cream: Good.
Sweet Chocolate rolled in roasted Almonds: Chocolate Cream center good.
Pecan Caramel Chew, half dipped in Chocolate: Good.
Assorted Nut Caramel Chew: Good.
Vanilla & Chocolate Cocoanut layer of Nougat, half dipped in Chocolate: Good.
Plain Pecan Caramel Chew: Good.
Yellow Bon Bon; Cream Center, lemon flavor: Good.
Vanilla Brazil Bon Bon: Brazil very strong tasting.
Orange Cream Center Bon Bon: Good.
Rose Bon Bon, Chocolate Cream Center: Good.
Vanilla Caramel Bon Bon: Good.

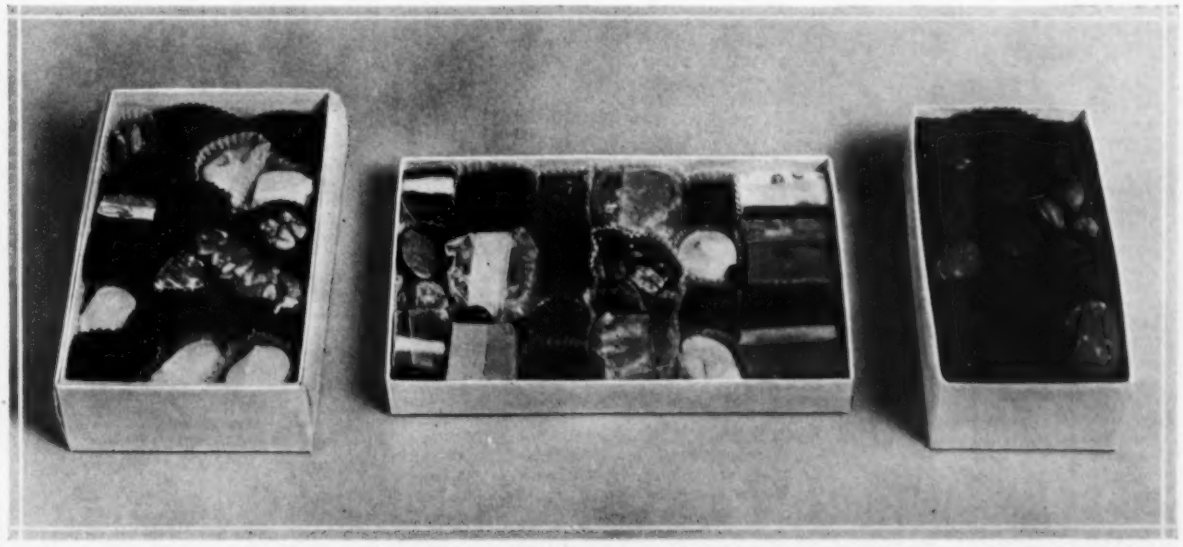
Assortment: Good.

Remarks: This box of candy is not up to the dollar standard. Caramel

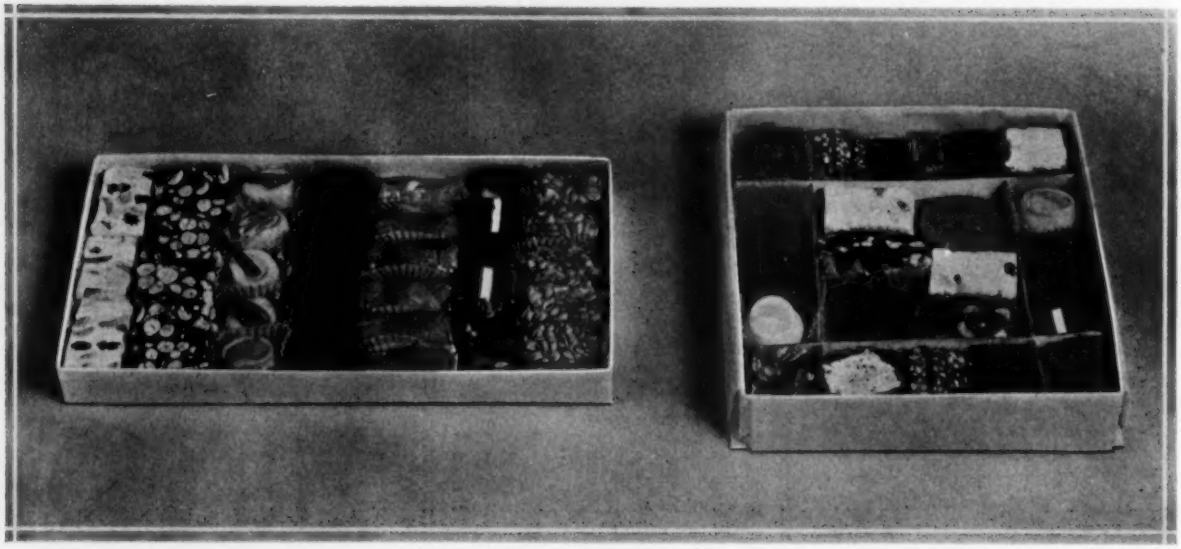
The candy Clinic is conducted by one of the most experienced superintendents in the candy industry. Each month he picks up at random a number of samples of representative candies. This month it is assorted Homemades; next month it will be Gum and Jelly Work. Each sample represents a bona-fide purchase in the retail market, so that any one of these samples may be yours.

This series of frank criticisms on well-known, branded candies, together with the practical "prescriptions" of our clinical expert, are exclusive features of the M. C.

Home-made Layouts which deserve "honorable mention."



The Clinic Superintendent suggests "eye-teasers" like these—



and Butterscotch centers need rechecking. They are being cooked entirely too high and do not have a very good taste. The Chocolate dipped Bon Bon is not a good eating piece either. Looked as though a stale bon bon had been used.

Code 4L 29

Homemade Assorted Chocolates, $1.00 lb.

(M'f'd in Swampscott, Mass.)
(Purchased in a Drug Store in Boston, Mass.)

Appearance of package: Attractive. Blue Cellophane used, two seals.

Box: Plain white box, name and trademark in black. Tied with blue ribbonzene.

Appearance of goods on opening: Very good. All pieces in place. Neatly packed.

Chocolate Coating: Sweet.

Color: A little too dark.

Gloss: Very good.

Strokes: Plain, neatly done.

Taste: Very good.

Centers: Raspberry Cream. Very good.
White Cream: No flavor could be tasted.
Peanut Taffy Square: Good.
Marshmallow Caramel: Marshmallow tough. Caramel had too much chew.
Ting Ling: Good.
Molasses Plantation: Good.
Almonds: Good.
Orange Peel: Good.
Wintergreen Cream: Good.
Newport Mint: Peppermint flavor not strong enough.
Molasses Chip: Good.
Filbert Cluster: Good.
Vanilla Nut Taffy: Good.
Nut Date: Good.
Brazil: Good.
Chocolate Caramel: Good.
Lemon Cream: Entirely too much flavor used.
Butterscotch: Had very little taste.
Sprinkle Vanilla Cream: Good.
Maple Cream: Good.
Nougat: Of good flavor and with Pistachio Nuts, but nougat was very poor. (See remarks.)
Peppermint Jap Jelly: Partly grained. Flavor very faint and jelly poorly made. (See remarks.)
Peanut Taffy: Good.
Orange Cream: Good.
Peppermint Cream: Good.
Peanut Cluster: Good. (See remarks.)
Belmont Marshmallow: Good.
Marshmallow Jelly: Jelly partly grained.
Chocolate Fudge: Dry and grained.
Foil Cup with "shot" on top; solid Chocolate: Good.

Assortment: Good.

Remarks: This box contained a large and pleasing assortment and was well balanced. Check up on your flavors. Some of the centers had barely enough to be tasted. The nougat was very poor and we suggest you try to work out a new formula. A nougat is a fine piece of candy when made properly. The jelly piece was entirely too tough. Jellies should be tender and well flavored. Peanut Clusters have no place in a $1.00 box of candy; use a cashew or pignolia cluster instead. We suggest that a good ribbon be used on the box instead of the ribbonzene.

Code 4M 29

Homemade Candies, 75c lb.

(M'f'd and purchased in Chicago.)

Appearance of package: Good. Brown paper wrap, tied with brown cord.

Box: Light brown paper, printed in brown; nice looking.

Appearance of box on opening: Very good. Cellophane layer on top. All pieces in place. Neatly packed and a good "layout."

Chocolate Coatings: Bittersweet, Sweet and Milk. All three coatings of excellent quality for goods in this price class.

Milk Chocolate Centers: Pecan Taffy: Very good.
Fruit Nougat: Good.
Marshmallows: Good.

Bittersweet Chocolate Centers: Vanilla Cream: Dry and grained. No flavor recognizable.

Sweet Chocolate Centers: Molasses Plantation: Good.
Nut Nougat: Good.
Maple Cream: Soft but short, and like powdered sugar. Flavor good.
Chocolate Sprinkle Spiced Fruit Cream Center: Good.
Chocolate Sprinkle Tin Foil Cup—Solid Milk Chocolate: Good.

Home Made Candies: Butterscotch: Good.
Vanilla Pecan Caramel: Good.
Chocolate Marshmallow Caramel: Good.
Nut Nougat: Good flavor; nougat "short" and dry.
Caramel-dipped Almond: Good.
Pecan Mallow: Good.
Pecan Caramel Chew: Good.
Molasses Taffy: Good.
Pecan Brown Sugar Cream Roll: Good.
Pecan Taffy: Good.
Crystallized Jelly Apricot: Good.
Vanilla Marshmallow Caramel: Good.
Crystallized Orange Cream Center Bon Bon: Good.
Crystallized Pink Colored Cocoanut Bon Bon: Good.
Chocolate Panned Raisins: Pan work not good. Raisins only partly covered.

Assortment: Very good. Well balanced.

Remarks: This box was put up with care and good judgment used in the "layout." This is one of the best homemade boxes we have examined

in some time, and we understand that it is enjoying a large sale.

Code 4N 29

Homemade Chocolates, 80c lb.

(M'f'd and purchased in Chicago.)

Appearance of package: Good. Brown wrapper used, tied with brown cord.

Box: Brown buff paper, printed in brown.

Appearance of box on opening: Good for this class of goods. Only one liner. Suggested that two be used.

Chocolate Coatings: Belmont Milk, Bittersweet and Sweet. Coatings of fair quality for this price candy.

Centers: Belmont Milk Coated Marshmallow: Good.
Sweet Chocolate: Nutted Cream: Fondant good but no flavor could be tasted.
Pineapple Fruit: Good.
Vanilla Nut Caramel: Good.
Molasses Cocoanut: Good.
Marshmallow Caramel: Marshmallow dry and hard. Caramel tasted as though made from scrap.
Cocoanut: Good.
Nougat: Nougat good. No flavor recognizable.
Vanilla Caramel: Good.
Turkish Paste: Good.
Marshmallow: Good.
White Cream: No flavor recognizable.
Maple Cream: No flavor recognizable.
Chocolate Cream Peppermint Flavor: Good.
One-half-dipped Fruit Nougat: Good.
Sprinkled Chocolate Cream Stick: Good.
Bittersweet One-half-dipped Cocoanut Kiss: Kiss partly dried out. Did not taste very good.
Homemade: Vanilla Black Walnut Caramel: Good.
Chocolate Pecan Caramel: Good.
Chocolate Nut Fudge: Good.
Maple Pecan Kiss: Very hard and dry. Had a good maple flavor.
Black Walnut Kiss: Very hard and dry. Nuts of good flavor.
Vanilla Nougat Bon Bon. Center good. Bon Bon coating very dry and hard.
Vanilla Caramel Bon Bon: Center good. Bon Bon coating very hard.
Caramel Buttercream Cut: Good.
Maple Black Walnut Bon Bon: Center good. Bon Bon coating very hard.
Vanilla Peppermint Marshmallow Bon Bon, one-half chocolate dipped: Center good. Bon bon coating hard.

Assortment: Fair.

Remarks: This box of homemades and chocolates was not up to standard, and the assortment was very limited. Chewy centers are needed in the chocolate-dipped pieces, and the homemades could stand a few taffies, nougat rolls, and some marshmallow pieces. A number of changes are needed in this package to be worth 80c lb.

Code 4O 29

Homemade Assorted Chocolates, 70c lb.

(M'f'd and purchased in Chicago.)

Appearance of package: Fair. Plain white paper wrapper used with red cord.

Box: Plain white, name in gold.

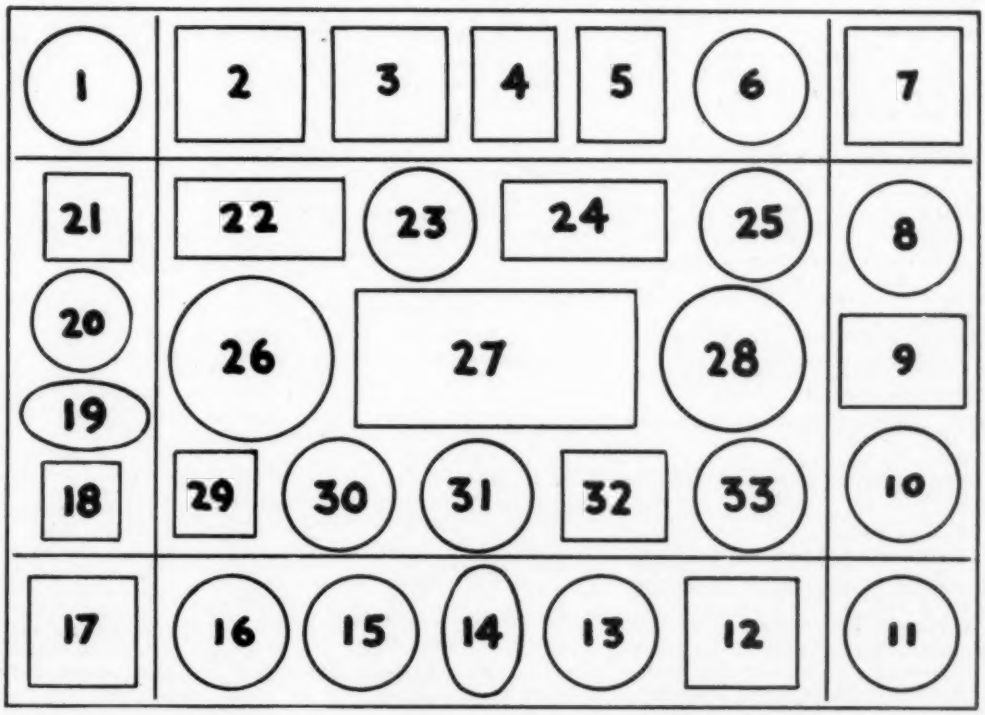
Appearance of box on opening: Fair. Pieces piled on top of each other, giving box appearance of being partly empty. All chocolate coated pieces wrapped in thin waxed paper.

Coating: Sweet, Milk and Bittersweet Chocolate. All three good for this price goods.

Bittersweet Chocolate Centers: Peppermint: Flavor good. Fondant dry and short.
Maple Walnut Cream: Good.
Vanilla Buttercream: Good.
Cocoanut Cream: Good.
Chocolate Cream: Good.
Cocoanut Paste: Good.
Vanilla Black Walnut Cream: Fondant dry and short. Flavor good.

Sweet Chocolate Centers: Raisin Cluster: Good.

A typical Home-made package "formula" of pleasing appearance and variety.



1. Cocoanut Bon Bon
2. Nut Taffy
3. Chocolate Covered Molasses Plantation
4. Vanilla Fruit Nougat
5. Red Crystal Jelly
6. Chocolate Covered Buttercream
7. Vanilla Fudge
8. Almond Mallow
9. Chocolate Covered Nougat
10. Cocoanut Caramel—Pink
11. Cocoanut Bon Bon—White
12. Nut Taffy
13. Italian Cream
14. Red Jelly Cocoanut Mallow
15. Yellow Crystal Jelly
16. Chocolate Covered Marshmallow
17. Chocolate Fudge
18. Chocolate Cocoanut Caramel
19. Almond Mallow
20. Fruit Cream
21. Vanilla Caramel
22. Fruit Nougat
23. Chocolate Covered Buttercream
24. Wrapped Butterscotch
25. Crystal Jelly
26. Pecan Nougat Roll
27. Wrapped Butter Taffy Covered with Nuts
28. Almond Fruit Nougat Roll
29. Brazil Caramel
30. Cocoanut Bon Bon—Pink
31. Chocolate Covered Fruit Cream
32. Caramel Marshmallow
33. Chocolate Covered Molasses Plantation

Nougat: Good.
Vanilla Nut Caramel: Good.

Milk Chocolate Centers: Caramel: Good.
Fruit Nougat: Good.
Chocolate Cream: Good.
Spiced Chocolate Raisin Cream: Good.
Vanilla Buttercream: Good.
Nut Date: Good.
Belmont Coated Vanilla Cream: Good.

Bon Bons: Green Bon Bon: Nut cream center hard and dry. No flavor distinguishable.
Pink Bon Bon: Cocoanut center good.
Chocolate-Colored Bon Bon: Cocoanut center good.

Assortment: Too small.

Remarks: This box is priced fairly enough, but several of the pieces are not quite up to standard and should be improved.

Code 4P 29

Assorted Homemades, 70c lb.

(M'f'd and purchased in Chicago.)

Appearance of package: Good for this class of goods. White printed wrapper. Cord used.

Box: White wrapper, printed in gold; name in gold letters. Neat and distinctive.

Appearance of box on opening: Very poor. Chocolate-coated pieces broken. Goods all at one end of box. Packing very poor and pieces too large.

Homemades: Strawberry Nougat Bon Bon: Coating very hard and dry. Flavor very good.
Pecan Caramel Roll, center of Opera Cream: Good.
Vanilla Bon Bon, Nougat Center: Good.
Butter Taffy or Crunch: Good.
Maple Caramel Bon Bon: Center good. Bon Bon coating hard and dry.
Chocolate Walnut Fudge: Good.

Chocolate Coatings: Milk and Bittersweet.

Bittersweet Centers: Strawberry Nougat: Good.
Vanilla Caramel: Good.
Vanilla Cream: Good.

Milk Chocolate Centers: Vanilla Cream: Good.
Black Walnut Cream: Good.
Nut Nougat: Nougat hard and dry.
Fruit Cream: Good.
Cocoanut: Very good.
Almond Clusters: Good.
Fruit Cluster: Good.

Assortment: Very small. This box could stand a few chewy pieces, also a marshmallow number or two.

Remarks: The packing of this box is in serious need of changing as the contents looked anything but appealing when opened. The pieces are too large, and half of them too "rich" for the average person to enjoy. The bon bon coating was very hard. The cream resembled a buttercream fondant, but did not taste like it.

Code 4Q 29

Homemade Assorted Chocolates, 70c lb.

(M'f'd and purchased in Chicago.)

Appearance of package: Good. White paper wrapper, blue cord.

Box: Cream-colored herringbone paper used. Name and trademark in blue. Tied with blue ribbonzene.

Appearance of box on opening: Good. All pieces in place. Suggest the piece rolled in cocoanut be wrapped in wax paper, as the cocoanut was all over the balance of the chocolates.

Chocolate Coating: Sweet and Milk Chocolate. Both good for this price goods.

Milk Chocolate Covered Centers: Nougat: Fair. A little tough.
Almond Cluster: Good.
Maple Cream: Flavor fair. Fondant grained; had small pieces of sugar in it.
Vanilla Cream: Flavor good. Fondant grained and had small pieces of sugar in it.
Maple Walnut Cream: Flavor good. Fondant same as above.
Vanilla Black Walnut Cream: Fondant same as above. Flavor good.

Sweet Chocolate Covered Centers: Chocolate Fudge rolled in cocoanut: Good.
Pineapple Fruit Cream: Good.
Grape in Cream: Good.
Vanilla Ginger Cream: Good.
Vanilla Cocoanut Cream: Good.
Fruit Nougat rolled in sprinkles: Good.
Date Paste: Good.
Fig Caramel: Not a good eating piece. Tasted burnt and was very hard.
Cherry Cordial: Good.
Pineapple Fruit: Good.
Peppermint Cream: Flavor good. Fondant hard and dry.
Brazil: Good.
Filbert Cluster: Good.
Almond Cluster: Good.
Molasses Chip: Good.
Butterscotch: Good.
Mint Jelly: Good.
Molasses Sponge Stick: Good.

Bon Bons: Vanilla Bon Bon, half chocolate-dipped: Center ground figs good.
Green Bon Bon: Peppermint Jap Jelly center good.
Yellow Bon Bon: Lemon Jap Jelly center good.

Assortment: Good.

Remarks: The cream centers need to be looked into as they were grained. There is no excuse for this. This box of candy can hardly be sold at a profit for 70c lb. Your Cost Department had better get busy as it is probably being sold at a loss.

Code 4R 29

Homemade Assorted Chocolates, 75c lb.

(Purchased in Chicago.)

Appearance of package: Good. White bond wrapper, tied with blue cord.

Box: White wrapped. Printed in black. Very novel box. Box is measured off in inches. Printing to represent ribbon and bow.

Appearance of box on opening: Good. Pieces all in place. Well packed.

Chocolate Coating: Milk, Sweet and Bittersweet used.

Milk Chocolate Covered Centers: Date Paste: Good.
Pecan Cluster: Good.
Caramel: Good.
Maple Walnut Cream: Good.
Belmont Vanilla Buttercream: Good.
Butterscotch and Nuts: Good.
Chocolate Buttercream: Good.
Molasses Plantation: Good.
Black Walnut Cream: Good.

Bittersweet Covered Centers: Chocolate Buttercream: Good.
Vanilla Buttercream: Very good.
Cocoanut Buttercream: Very good.
Maple Walnut Cream: Very good.
Black Walnut Cream: Good.

Sweet Chocolate Covered Centers: Almond Clusters: Good.
Nougat: Good.
Caramel: Good.

Bon Bons: Vanilla Brazil: Brazil very strong tasting. Bon bon coating very hard.
Vanilla Bon Bon: Apricot Jelly center good.
Pink Bon Bon: Cocoanut center dry and did not taste good.
Maple Brazil Bon Bon: Brazil strong.
Orange Bon Bon: Orange jelly center good.

Assortment: Good.

Remarks: This is a good box of candy for 75c lb. Suggest bon bons be crystallized, as they were not particularly good. Also, the bon bon coating was quite hard.

Code 4S 29

Homemade Assorted Chocolates, 60c lb.

(M'f'd in Toronto, Canada.)

(Purchased in a Chain Drug Store in Toronto.)

Appearance of package: Good. Light brown wrapper. Printing and trademark in blue.

Box: Buff-colored wrapper. Printing in white. Lady's head in white on deep blue.

Appearance of box on opening: Good. All pieces in place and well packed.

Chocolate Coating: Milk and Sweet Chocolate. Both good for this price goods.

Milk Chocolate Covered Centers: Almonds: Good.
Filbert Clusters: Good.
Peanut Clusters: Good.
Brazil: Good.

Sweet Chocolate Covered Centers: Nougat: Good.
Butterscotch: Good.
Almond Taffy: Good.
Caramel: Good.
Assorted Nut Taffy: Good.

Assortment: Entirely too limited.

Remarks: The pieces used in this box are made of high priced raw materials. They can be figured to sell at 60c a pound (at least, in the U. S.). We suggest that a few more centers be used, as the assortment is very small.

The CANDY CLINIC

Code 4T 29

Assorted Homemades, 80c lb.

(Purchased in a Chain Candy Store in New York City.)

Appearance of package: Plain; white bond paper wrapper, colored cord.
Box: White paper wrapper, printed in gold. Head in black and white. Plain but attractive.
Appearance of box on opening: Good. Pieces in place and none scratched.
Chocolate Coating: Milk, Sweet and Bittersweet. Three kinds good for this price goods.
Milk Chocolate Centers: Maple Cream: Good.
Belmont Coating Covered: Cocoanut Cream: Good.
Sweet Chocolate Centers: Pineapple Fruit Cream: Good.
Molasses Peanut Sponge: Good.
Almond Taffy: Good.
Vanilla Nut Caramel: Good.
Cordial Cherry: Good.
Marshmallow: Good.
Bittersweet Chocolate Centers: Chocolate Buttercream: Good.
Vanilla Buttercream: Good.
Homemade Pieces: Almond Taffy or Crunch: Good.
Maple Walnut Fudge: Good.
Plain Chocolate Fudge: Good.
Almond Fudge Roll: Good.
Walnut Taffy: Good.
Walnut Nougat Roll: Good.
Assortment: Good.
Remarks: This is a very good line of homemade candies. Some pieces, however, are a trifle too large.

Code 4U 29

Homemade Assorted Chocolates, 60c lb.

(M'f'd in Ontario, Canada.)
(Purchased in a Drug Store Kitchen, Ontario, Canada.)

Appearance of Package: Plain and attractive. Light buff-colored wrapper, colored cord; printing in dark gray.
Box: Light buff paper. Trademark and printing in gray.
Appearance of box on opening: Poor. Cherry Cordial broken and cordial was over the other pieces. More care must be taken in packing.
Chocolate Coating: Sweet and Milk Chocolate. The Milk Coating was of mediocre quality and was not "finished" enough. Sweet Coating was fair.
Milk Chocolate Covered Centers: Almonds: Good.
Date Nut Paste: Good.
Maple Cream: Fair. Flavor "off."
Nutted Milk Chocolate Covered Centers: Cocoanut Paste: Good.
Butterscotch Wafers: Good.
Sweet Chocolate Covered Centers: Molasses Cream: Good.
Brazil Cream: Good.
Sprinkle Top Chocolate Cream: Good.
Vanilla Cream: Fondant dry. No flavor recognizable.
Pineapple Cream: Good.
Vanilla Caramel: Good.
Orange-colored Cream: Fondant good. Flavor appeared to be lacking.
Cordial Cherry: Very good.
Brazil Cream: Good.
Orange Cream: Good.
Chocolate Filbert Cream: Good.
Chocolate Buttercream: Good.
Vanilla Italian Cream: Good.
Assortment: Good.
Remarks: This box of candies, for the price of 60 per pound, is one of the best I have examined.

THE CANDY CLINIC
55-61 CORTLANDT STREET
NEW YORK CITY

℞

Handrolled centers and true fruit flavors help to put the "home" in "home-made".

SUPERINTENDENT

Code 4V 29

Assorted Homemades, $1.50 lb.

(M'f'd and purchased in Chicago.)

Appearance of package: Neat and distinctive. White bond paper wrapper, tied with ¼-in. white ribbon.
Box: Round tin, white and blue stripes. Name in white on blue base.
Appearance of box on opening: Poor. Dust and crumbs all over the box and candies. Pecan piece should be wrapped in waxed or glassine paper.
Chocolate Coating: Milk, Sweet and Bittersweet. All good, but gloss gone. Strokes very plain and carelessly done.
Sweet Chocolate Covered Centers: Cocoanut: Good.
Almond Taffy: Good.
Vanilla Caramel: Good.
Pineapple Fruit: Good.
Chocolate Fudge: Good.
Nougat: Good.
Chocolate Buttercream: Good.
Molasses Sponge: Good.
Marshmallow: Good.
Cocoanut, half dipped: Good.
Peppermint Cream: Good.
Panned Chocolate Pieces: Very good.
Panned Chocolate Filbert: Good.
Panned Orange Peel: Good.
Chocolate Cocoanut Paste: Good.
Almond: Good.
Half-dipped Vanilla Bon Bon: Ground date center good.
Milk Chocolate Moulded Shamrock: Good.
Bittersweet Pecan Cream: Good.
Homemades: Crystallized Marshmallow Peppermint Jelly: Good.
Crystallized Marshmallow and Jelly: Good.
Crystallized solid sugar, strawberry shape: Not a good eating piece. Very hard and flavorless.
Crystallized Jelly Ring: Good.
Sugared Orange Marshmallow Jelly: Good.
Maple Pecan Cocoanut Bon Bon: Good.
Vanilla Almond Paste and Nut Bon Bon: Good.
Maple Caramel Bon Bon: Good.
Maple Caramel Cream, coated with pecans: Hard and dry. Flavor good.
Small Maple Cocoanut Bon Bon: Good.
Rose Jordan Almond: Good.
Small Vanilla Bon Bon, one-half chocolate-dipped: Center of chocolate paste good.
Marshmallow Rose Bon Bon: Good.
Maple Brazil Bon Bon: Good.
Pistachio Jordan Almond: Good.
Foil-wrapped Walnut-Stuffed Date: Good.
Caramel-Dipped Almond: Good.
Assortment: Good.
Remarks: This box of candy at $1.50 a pound is not good value. Walnut-Stuffed Dates, Jelly pieces, Cocoanut Bon Bons, Sugared Marshmallow Jelly and Marshmallow Bon Bons are not $1.50 candies. They are ordinarily sold for 80c to $1.00 lb.

ARE YOU WORKING ON A HOME-MADE PACKAGE?

—an occasional glance around you at what the other fellow is doing will broaden your perspective and help you to originate new ideas of your own.

—The Candy Clinic simplifies the task by searching the highways and byways of the candy mart for you. Alertness is the price of progress.

Directory of Exhibitors

at the Annual Exposition and Convention of the National Confectioners Association at West Baden, June 3-8, 1929

ANHEUSER-BUSCH, INC., St. Louis, Mo. (No. 5)
Exhibiting Confectioners' Corn Syrup unmixed. In attendance: H. F. Ziegler.

ARVEY MANUFACTURING CO., 466 W. Superior St., Chicago, Ill. (No. 168)
Exhibiting Arvey Pails. In attendance: L. R. Agatstein, H. B. Toplon.

ATLANTIC GELATINE CO., Hill St., Woburn, Mass. (Nos. 47, 87)
Exhibiting gelatine and candies made from gelatine. In attendance: Joseph H. Cohen, David C. Babcock, Arthur F. Vyse, W. H. Jose, H. Gordon Mitchell, George Rohling and Robert Wothe.

BENTZ ENGINEERING CORP., 661 Frelinghuysen Ave., Newark, N. J. (No. 130)
Exhibiting regulation Bentz "CHILLBLAST" Air Conditioning, Cooling and Dehumidifying Machine; also Unit Air Conditioning Machine and Section of Standard Bentz "COLDBED." In attendance: R. P. Rasmussen, Alan Perkins, W. E. Lowell.

BETTS PRODUCTS CO., INC., 321 W. Austin Ave., Chicago, Ill. (No. 154)
Exhibiting Betco-Food Products for Confectioners. In attendance: George L. Betts, Peter Rose.

BLANKE-BAER EXTRACT & PRESERVING CO., 3224-3232 S. Kingshighway, St. Louis, Mo. (No. 144)
Exhibiting this year their line of special Dipping Fruits and Extracts and plan to have a line of chocolates and candies manufactured by various European countries, particularly Germany.

BREWSTER-IDEAL CHOCOLATE CO., Lititz, Pennsylvania.

B. H. BUNN CO., 7329 Vincennes Ave., Chicago, Ill. (No. 161)
Exhibiting The BUNN Package Tying Machine. In attendance: B. H. Bunn, H. E. Bunn.

FRED S. CARVER, 90 West St., New York City, N. Y. (No. 68)
Exhibiting various details and information on latest models of the Carver Automatic Type Cocoa and Cocoa Butter Presses. Will also show the Carver Laboratory Press. In attendance: Fred S. Carver, Hugo H. Fromm, R. H. Simpson.

CROWN FRUIT & EXTRACT CO., INC., 418 W. Broadway, New York City, N. Y. (No. 158)
Exhibiting fruit and specialties for dipping and for fruit creams, nougats, bar pieces, also True Fruit Concentrates and Extracts for flavoring cream centers and other pieces. In attendance: E. R. Jagenburg, S. L. Kamps.

DELINE MANUFACTURING CO., 1079 Santa Fe St., Denver, Colo. (Nos. 37, 38, 39)
Exhibiting hand-painted paper boxes, leather and silk boxes, also heart boxes of all kinds and special novelty boxes for all occasions.

EDUCATIONAL DISPLAY OF CANDY. (Nos. 140-141-142.)

ELDER & ROBINSON CO., 5711 W. Chicago Ave., Chicago, Ill. (No. 29)
Exhibiting The E & R Plastic Candy Maker. The American Built and Serviced high-speed forming machine for plastic and other hard candy. In attendance: Earl B. Elder.

EXPANDO COMPANY, 120 S. LaSalle St., Chicago, Ill. (No. 60, 61)
Exhibiting Expando, automotive sales display equipment. In attendance: Robert E. Rohne, Robert D. Duthie, A. J. Sorensen.

E. E. FAIRCHILD CO., Rochester, N. Y.

FOOD MATERIALS CORP., 3450-52 W. Lake St., Chicago, Ill. (No. 169, 170)
Exhibiting hard candy, flavors, pure fruit flavors, flavors for jelly and cream work, vanillas, essential oils and colors. In attendance: W. F. Leonard, H. E. Allen, R. J. Rooney, R. E. Sheehan, R. H. Harding, C. Ganucheau, E. W. Carlberg, G. R. O'Brien, E. Bushnell.

FRIGIDAIRE, Inc., Dayton, Ohio. (Nos. 72-73.)

FUMIGATORS' SUPPLY CO., 535 Fifth Ave., New York City, N. Y. (No. 52)
Exhibiting equipment, illustrations and literature, showing details of fumigation with liquid hydrocyanic acid. In attendance: H. J. Langhorst, J. C. Wakefield.

GENERAL ELECTRIC CO., Schenectady, N. Y.

THE GERLING TOY CO., 12 West 21st Street, New York City, N. Y.
Exhibiting dancing dollies and novelties for premium items. In attendance: Arthur A. Gerling.

IRA L. HENRY CO., Watertown, Wisc. (Nos. 111, 112)
Exhibiting fancy boxes and heart boxes. In attendance: E. F. Goecke, N. T. Yeomans.

HERSEY MANUFACTURING CO., South Boston, Mass. (No. 51)
Exhibiting Hersey Starch Conditioner—no machinery—illustrations and diagrams. In attendance: H. W. Harrigan.

HY-SIL MANUFACTURING CO., Revere, Mass. (No. 86.)

INTERNATIONAL SWEETS, Milwaukee, Wisc.

KNICKERBOCKER CASE CO., 2311-29 N. Crawford Ave., Chicago, Ill. (No. 85)
Exhibiting Salesmen's Sample Cases for displaying confectionery of all kinds. In attendance: R. S. Thompson.

J. M. LEHMANN CO., INC., 248 West Broadway, New York City, N. Y. (Nos. 23, 24)
Exhibiting one 4,400-lb. Conche with two Round Tanks. In attendance: E. Raue, E. Kuhmann.

LIBERTY CHOCOLATE MACHINERY CO., 108 E. 2nd St., Cincinnati, Ohio.
Exhibiting 24" Liberty Icing Koater, samples of iced goods, etc. In attendance: John Massarella, M. J. Massarella, A. R. Massarella.

MALT-DIASTASE CO., New York City, N. Y.

NATIONAL ANILINE & CHEMICAL CO., New York City, N. Y.

NATIONAL CONFECTIONERS' ASSOCIATION'S Advertising and Educational Department, Chicago, Illinois. (Nos. 113-114-115.)

THE NUSSBAUM NOVELTY CO., Berne, Ind. (No. 93)
Exhibiting Toy, Candy and Juvenile Cedar Chests. In attendance: Sam Nussbaum.